

REMARKS

In the Office Action mailed September 30, 2005, the Examiner noted that claims 1-24 and 27-35 were pending, that claims 2-13, 16, 20-24 and 27-31 have been withdrawn from consideration, and rejected claims 1, 14, 15, 17-19 and 32-35. Claims 1, 14, 15, 19, 32-35 have been amended, and, thus, in view of the forgoing claims 1, 14, 15, 17, 19 and 32-35 remain pending for reconsideration which is requested. No new matter has been added. The Examiner's rejections are traversed below.

On page 3 of the Action the Examiner rejected claims 1, 14, 15, 17-19 and 32-35 under 35 U.S.C. section 112, paragraph 1 for failure to comply with the written description requirement. In the Office Action the Examiner rejected claims 1, 14, 15, 17-19 and 32-35 under 35 U.S.C. section 112 paragraph 2 as indefinite. The claims have been amended in consideration of the Examiner's comments in the two rejections and it is submitted they satisfy the requirements of the statute. If additional concerns with the claims arise, the Examiner is invited to telephone to resolve the same. Suggestions by the Examiner are also welcome. Withdrawal of the rejections is requested.

On page 4 of the Office Action, the Examiner rejected claims 1, 14, 15, 17-19 and 32-35 under 35 U.S.C. § 102 as anticipated by Winkelman. Pages 5 and 6 of the Office Action rejects claims 18 and 15, 19 and 34 under 35 U.S.C. § 103 over Winkelman with Kinjo or Katajamaki, respectively.

The present invention, in estimating a tone level of an image, first divides an entire area of an original image into a plurality of image sub-areas or regions, second conducts a statistics operation for each of the sub-areas and computes a characteristic amount for each sub-areas producing characteristic amounts, and third uses the characteristic amounts from each of the sub-areas to compute a statistic amount for estimation of the tone color value level of whole of the original image. The statistic amount computed for the entoire image is used to correct the image.

In contrast, Winkelman describes dividing a region of an original image into plural sub-regions and conducting an evaluation of amounts for the regions. The amounts are obtained by conducting a statistics operation on each of the regions.

That is, Winkelman computes an amount for each pf the sub-regions of a region of an image producing plural amounts for the image while the present invention computes an amount for the entire image allowing the entire image to be corrected.

This is very different from the present claimed invention.

Kinjo and Katajamaki add nothing to Winkelman with respect to the features of the invention discussed above. For this reason, it is submitted that the present invention is distinguishable over the prior art and withdrawal of the rejection is requested.

In addition, on page 4 of the Action, the Examiner alleges that an histogram is a tone level estimate. In particular, the Examiner states:

Winkelman further discloses that the computed standard deviation is used in the estimation of tone level of the image (col. 12, line 45 - col. 13, line 5: The reference describes how the standard deviation is used to help calculate histograms - which are tone level estimates.

(see Action, page 4)

A histogram is a graphical representation of a frequency distribution not a tone level.

histogram: a representation of a frequency distribution by means of rectangles whose widths represent class intervals and whose areas are proportional to the corresponding frequencies

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That is, a histogram is a frequency distribution and can be a frequency distribution of anything.

The histograms of Winkelman are gradation histograms associated with image contrast.

As noted in Winkelman:

As is known, electronic image processing is essentially composed of the steps of image input, image processing and image output. Analysis of image gradation generally is undertaken during image processing for the acquisition of correction curves for the correction of image gradation characteristics to effect contrast corrections in image originals.

(See Winkelman, col. 1, lines 16-23)

For this purpose, the invention provides that:

an image original to be analyzed is geometrically subdivided into a plurality of sub-images;

a frequency distribution of an image value, preferably a luminance component of color values, in a corresponding sub-image is separately identified in a sub-image histogram for every sub-image;

the sub-image histograms of the individual sub-images are evaluated and sub-images critical to the image for image gradation are identified based on the evaluation;

an aggregate histogram that corresponds to the frequency distribution of the image values, or, respectively, of the luminance component of the color values, in the image-critical sub-images is calculated from the sub-image histograms of the image-critical sub-images; and

a correction curve for the correction of an image gradation characteristic of

the image original for the purpose of contrast correction is calculated from the aggregate histogram according to a histogram modification method

(See Winkelman, col. 3, lines 11-31, **bold** emphasis added)

These contrast corrections, i.e. the luminance corrections of the image values, are undertaken based on the correction of the image gradation characteristic with a correction curve a path of which is respectively matched to the image content of the image original, whereby a corrected, steeper image gradation characteristic effects an intensification of contrast, and a corrected, flatter image gradation characteristic **effects a reduction in contrast**.

(See Winkelman, col. 9, lines 29-35, **bold** emphasis added)

A gradation of an image involves the number of steps or sample levels or quantization levels that an image has:

gradation: 1 a : a series forming successive stages b : a step or place in an ordered scale.

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And, contrast and tone are two different things:

contrast: 1 a : juxtaposition of dissimilar elements (as color, tone, or emotion) in a work of art b : degree of difference between the lightest and darkest parts of a picture.

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tone: 7 a (1) : color quality or value (2) : a tint or shade of color b : the color that appreciably modifies a hue or white or black <gray walls of greenish tone> 8 : the effect in painting of light and shade together with color.

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Further, the portion of Winkelman (col. 12, line 45 - col. 13, line 5) alleged by the Examiner as teaching tone level estimation does not address such.

Sub-Image Classification Step >C2!

The classification of the sub-images can proceed according to the following classification pattern:

Parameter	Parameter "Scatter"
"Rel. area proportion"	
SDev < SwSDev	
SDev > SwsDev	

FLAnt >	Sub-image	Sub-image
SwFLAnt	Without Structure	
	Without Structure	
FLAnt <	Sub-image	Sub-image

SwFLAant	Without Structure
	With Structure

Denoted in this classification pattern are:

SDev=histogram parameter "scatter"

FLAnt=histogram parameter "rel.area proportion"

SwSDev=threshold for histogram parameter "scatter"

SwFLAnt=threshold for histogram parameter "rel.area proportion".

A sub-image that only contains structure is thus classified as image-critical when the value of the histogram parameter SDev "scatter" is higher than the prescribed threshold SwSDev and the value of the histogram parameter FLAnt is lower than the prescribed threshold SwFLAnt.

The sub-image histograms of those sub-images that were classified as structure-rich according to the above classification pattern are utilized for the calculation of the aggregate histogram according to Method Step >D!, and this is set forth below.

(See Winkelman, col. 12, line 45 - col. 13, line 5)

In fact the word "tone" is not used anywhere in Winkelman. The Examiner is requested to point out where in Winkelman the word "tone" can be found.

As a result, it is submitted that Winkelman is about using a frequency distribution to adjust the gradation characteristic (or quantization level) of an image for the purpose of contrast (dark/light) correction. This is very different from the present invention, which is about tone (color value) level adjustment of an entire image based on analysis of sub-areas of the image.

It is submitted that the present invention further distinguishes over the prior art for this reason

It is submitted that the invention of the claims distinguishes over the prior art and withdrawal of the rejection is requested.

It is submitted that the claims satisfy the requirements of 35 U.S.C. 112. It is further submitted that the claims are not taught, disclosed or suggested by the prior art. The claims are therefore in a condition suitable for allowance. An early Notice of Allowance is requested.

Serial No. 09/957,032

If any further fees, other than and except for the issue fee, are necessary with respect to this paper, the U.S.P.T.O. is requested to obtain the same from deposit account number 19-3935.

Respectfully submitted,

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